AIR CONDITIONING EQUIPMENT MECHANIC LEADER WL-5306-10

OPERATIONS WORKCENTER

I. POSITION AND ORGANIZATION INFORMATION

Position:
~~Maintenance~~ Equipment Mechanic Leader, WL-~~4749~~-10
Air Conditioning 5306

Purpose of position:

Job is established to perform facilities maintenance work primarily involving, in the same job, TWO OR MORE of the trades which perform maintenance and repair of facilities such as buildings, structures, grounds, and related fixtures and utilities.

Organization:

Facilities Mgmt Div., Maintenance Branch

Organization goals:

II. MAJOR DUTIES

A. Duty (Non-Critical):

Performs typical duties of a Working Leader (14%)

Tasks:

Performs typical duties of a Working Leader

1. Passing on to other workers the instructions received from supervisors and getting work started, e.g., by assigning the immediate tasks to be performed by individual member of the group led;

2. Working along with other workers and setting the pace;

3. Demonstrating proper work methods;

4. Ensure needed plans, blueprints, materials, and tools are available, and that needed stock is obtained from supply locations;

5. Obtaining needed information or decisions from supervisors on problems that come up during the work;

6. Maintaining current knowledge, and answering questions of other workers on procedures, policies, written instructions, and other directives (e.g. technical orders);

7. Ensuring that there is enough work to keep everyone in the work crew busy;

8. Checking work while in progress and when finished to see whether the supervisor's instructions on work sequence, procedures, methods, and deadlines have been met;

9. Urging or advising others workers to follow instructions received from supervisors, and to meet deadlines;

10. Assuring that safety and housekeeping rules are followed;

11. Reporting to the supervisors on status and progress of work and causes of work delays; and

12. Answering questions of supervisors on overall work operations and

Selected Staffing KSAs:

B. Duty (Critical):

The electrician installs, repairs, modifies, troubleshoots, loads and tests new and existing electrical lines, circuits, systems, fixtures and controls located in and near installation buildings and structures. (14%)

Tasks:

1. Plans and determines the routing, placement, type, size, gauge, balance, load, continuity and safe operation of circuits, systems, equipment and controls.

2. Installs or replaces lighting facilities and systems requiring necessary wiring, switches, panels, breakers, and junction and control boxes.

3. Troubleshoots installed equipment by tracing circuits, locating shorts, replaces fuses. Inspects for defective equipment and faulty wiring. Makes necessary splices and other repairs. Replaces equipment, such as electrical motors, pulleys and belts, to correct trouble.

4. Tests and maintains gasoline and diesel generators for proper electrical output.

5. Uses handtools such as screwdrivers, pliers, wire cutters, soldering irons, and a wide variety of test equipment, including test lamps, voltage recording meters, meggers, watt meters, ohmeters, and ammeters.

6. As required, guides and trains lower grade employees.

Selected Staffing KSAs:

A1, A2, A3, A4, A5, A6, A7, A8, A9, A10

C. Duty (Critical):

The employee installs, troubleshoots, repairs, and modifies water supply, sewage disposal, oil and gas lines, and similar utility systems and equipment. (14%)

Tasks:

1. Repairs, installs, and modifies a wide range of water, sewage, and other utility systems and equipment. Equipment includes water closets, tubs, fire sprinkler systems, showers, and similar equipment which tie into the larger distribution and collection systems, and equipment such as water heaters, disposals, and dishwashers when new routing and placement is required. May include solar hot water generating systems.

2. Install, modify and repair hydronics (chilled water and hot water) low pressure systems.

3. *Modifies and repairs well water systems as needed.*

4. Plans work, including routing, placement, slant, slope, fall, and level. Determines tools, parts, equipment, and supplies needed, including proper types, sizes, and materials.

5. Locates and taps main lines; places and cuts route openings; determines, places and installs proper lines, hangers, valves, traps, and unions where needed.

6. Cuts, bends, assembles, and seats pipe and fittings. Fabricates and installs odd size adjoining parts. Improvises installations when blueprints and sketches do not provide sufficient information.

7. Tests and checks completed work for proper operation, flow, pressure, drainage, and sanitation, including the absence of leaks, air lock, vacuum, and other defects. Records changes in the plumbing systems. Documents that inspections have been completed at required intervals. Ensures compliance with agency requirements, national or state codes, and/or decisions by authority having jurisdiction.

8. Applies skill in using tools of the trade, such as tapes, rules, plumb bobs, hand and power pipe threaders, cutters, pipe wrenches, angle drills, hacksaws and power saws, power sewer cleaning equipment, acetylene, propane, cutting and brazing torches, and various gas detectors and meters to do plumbing such as that above.

9. Assists in pipefitting, performs preventive maintenance, and/or assists other crafts personnel when not accomplishing the work above.

10. As required, guides and trains lower grade employees.

Selected Staffing KSAs:

A1, A11, A12, A13

D. Duty (Critical):

The employee repairs and maintains a variety of large commercial and industrial refrigeration and air conditioning systems and supporting equipment with complex problems and extensive repairs requiring judgment to locate malfunctions. Systems include those with a variety of compressors and a variety of refrigerant controls. Systems use a variety of complicated motor controls and other controls to protect against overload or overheating. Calculates air flow and pressure-temperature characteristics. Maintenance includes dismantling, repairing, reassembling, and testing units such as pumps, impellers, compressors, chillers, receivers, condensers, and evaporators. (14%)

Tasks:

1. Makes extensive repairs to faulty equipment to keep inoperative time to a minimum.

2. Locates trouble before dismantling and makes repair to insure proper functioning after reassembly.

Selected Staffing KSAs:

A14, A15, A16, A17, A18, A19, A20, A21

E. Duty (Critical):

Plans, lays out, and installs a variety of large complex commercial and industrial systems and supporting equipment used to condition air in warehouses, shops, hangars, hospitals, and large office buildings. Complexes contain special requirements such as communication centers, electronic data processing centers, operating rooms, laboratories, clean rooms, link training rooms, and other areas with sensitive equipment. (14%)

Tasks:

1. Reads and interprets detailed equipment blueprints, electrical schematics, drawings, and specifications for proper installation.

2. Determines installation needed to accomplish work so that downtime of system is held to a minimum.

Selected Staffing KSAs:

A14, A15, A16, A17, A18, A20, A21

F. Duty (Critical):

Troubleshoots a variety of large commercial and industrial refrigeration and air conditioning systems and supporting equipment. Checks elements which control low and high side pressure; the temperature of the cooling units, liquid and suction lines, and the running time of various mechanisms. Checks for the probability of leaks by visual and audible examination of equipment, by application of prescribed test procedures and equipment, and by exploration of probable reasons for equipment failure. Tests refrigeration, air conditioning, ventilation, and related control systems and equipment. Analyzes and isolates system malfunctions. Tests pressure and temperature of refrigeration and distribution systems. Tests system operation and detects component malfunctions. Inspects and calibrates controls and gauges. (14%)

Tasks:

1. Determines causes of defects and malfunctions on assigned equipment.

2. Determines repairs needed through appropriate testing and inspection.

Selected Staffing KSAs:

A14, A15, A16, A17, A18, A19, A20, A21

G. Duty (Critical):

Utilizes established safety practices, rules, regulations, and procedures to maintain a safe and clean work environment. Uses and assures proper fit of required safety equipment and clothing such as safety shoes, glasses, ear protection, face masks, and/or hard hats. Uses and maintains tools.

Maintains records and documents actions. (16%)

Tasks:

1. Operates equipment in a safe manner, applying established safety rules and regulations to minimize minor violations and to avoid major violations due to employee error or negligence.

2. Informs the supervisor of accidents and/or damage to supplies or equipment or of any observed unsafe practices, procedures, and/or conditions in a timely manner and in accordance with established policies and procedures.

3. Uses, maintains, and accounts for all types of hand and/or power tools and test equipment required to accomplish duties.

4. Prepares accurate, complete, and up-to-date records of actions taken and assures documentation is properly signed and coordinated in a timely manner.

Selected Staffing KSAs:

A14, A15, A16, A17, A18, A19, A20

H. Other Work Requirements

1. The employee may be recalled to duty.
2. This position requires the employee to drive a motor vehicle. An appropriate, valid driver's license is required for the position.
3. This position requires employee to work under adverse environmental conditions.

III. KNOWLEDGES, SKILLS AND ABILITIES (KSAs)

A. Selected Staffing KSAs:

1. Ability to do the work of the position without more than normal supervision
2. Knowledge of the construction, installation, operation, and troubleshooting of sophisticated circuitry and controls
3. Knowledge of theory and instruments used in electrical shop and trade practices
4. Knowledge of the technical practices involved in an electrical shop
5. Ability to interpret intricate station and manufacturer's drawings for test facilities
6. Ability to use all types of shop and hand tools, and test equipment associated with the electrical trade
7. Ability to troubleshoot sophisticated circuitry and electrical controls
8. Ability to demonstrate reliability and dependability as an electrician
9. Ability to handle weights and loads
10. Ability to follow directions in an electrical shop
11. Ability to use and maintain tools and equipment
12. Ability to troubleshoot problems
13. Ability to work as a member of a team
14. Knowledge of the principles and theories of air conditioning and refrigeration and properties of refrigerants.
15. Knowledge of the construction and operation of a variety of large commercial and complex industrial systems.

16. Knowledge of safety regulations, practices, and procedures.
17. Skill in dismantling, repairing, and reassembling pumps, impellers, compressors, chillers, receivers, and evaporators.
18. Skill in maintaining difficult balances of a variety of refrigerant controls and complicated motor controls.
19. Skill in troubleshooting complex problems on large projects applying prescribed test procedures and equipment.
20. Skill in the use of hand tools, power tools, and a variety of test equipment.
21. Ability to interpret instructions, specifications, etc. (including blueprint reading).

B. Basic Training Competencies:

1. Ability to do the work of the position without more than normal supervision
2. Knowledge of the construction, installation, operation, and troubleshooting of sophisticated circuitry and controls
3. Knowledge of theory and instruments used in electrical shop and trade practices
4. Knowledge of the technical practices involved in an electrical shop
5. Ability to interpret intricate station and manufacturer's drawings for test facilities
6. Ability to use all types of shop and hand tools, and test equipment associated with the electrical trade
7. Ability to troubleshoot sophisticated circuitry and electrical controls
8. Ability to demonstrate reliability and dependability as an electrician
9. Ability to handle weights and loads
10. Ability to follow directions in an electrical shop
11. Ability to operate as an electrician with dexterity and safety
12. Knowledge of equipment assembly, installation, and repair
13. Ability to apply technical practices in the performance of assigned work
14. Ability to measure and lay out materials, tools, steps, etc., needed to perform assignments
15. Ability to use and maintain tools and equipment
16. Ability to troubleshoot problems
17. Ability to work as a member of a team
18. Knowledge of the principles and theories of air conditioning and refrigeration and properties of refrigerants.
19. Knowledge of the construction and operation of a variety of large commercial and complex industrial systems.
20. Knowledge of safety regulations, practices, and procedures.
21. Skill in dismantling, repairing, and reassembling pumps, impellers, compressors, chillers, receivers, and evaporators.
22. Skill in maintaining difficult balances of a variety of refrigerant controls and complicated motor controls.
23. Skill in troubleshooting complex problems on large projects applying prescribed test procedures and equipment.
24. Skill in the use of hand tools, power tools, and a variety of test equipment.
25. Ability to interpret instructions, specifications, etc. (including blueprint reading).

IV. CLASSIFICATION FACTORS

Factor 1. Knowledge

1. Ability to lead a work crew

2. - Practical knowledge of electrical principles including how various circuits, equipment and controls fit and work together.

- Knowledge of the various gauges, sizes and types of wire, conduit, coupling, fittings, relays, boxes, circuit breakers and other electrical devices, and ability to arrange and install them in ways that insure safe and proper operation of electrical systems and equipment.

- Ability to interpret and apply blueprints, schematics, wiring diagrams, engineering drawings, technical manuals, National Electric Code, National Fire codes, local codes, and to use trade formulas to calculate common properties.

- Practical knowledge of electronic principles to troubleshoot electrical circuits containing electronic components.

- Skill in installing and rearranging old or new outlets, relays, switches and light fixtures.

- Skill in the use of hand tools, portable power tools and a wide variety of test equipment.

- Ability to test completed circuits for functionality after repair or installation.

3. - Practical knowledge of full range of plumbing principles, methods, and techniques.

- Knowledge of the design, layout, and operation of a variety of water supply, sewage disposal, gas and similar utility systems including their parts, equipment, location, material make-up.

- Ability to determine proper kind, material, and sizes of parts such as pipe, reduction couplings, elbows, traps, and valves.

- Skill in planning the lay out and installation or modification of various systems and equipment. For example, determines the routing, openings, slant, and level of gas and water lines, and the location and arrangement of water closets, sinks, and fire sprinkler equipment. Relocates or modifies utility systems for purposes such as building alteration, increase or changed use, and installation of industrial equipment.

- Skill in independently troubleshooting and repairing difficult to detect leaks and operating problems which require difficult or extensive repair.

- Skill in installing and modifying extensive sections of water, sewage, and

gas systems, and related equipment, with proper slant, slope, and level, pressure and operation.

- Ability to work from varied building plans, blueprints, sketches, agency requirements or codes, work orders, oral instructions, and similar guides.

- Ability to add, subtract, multiply, divide, and work with fractions in order to lay out arcs, circles, and tangents.

- Skill in the use of plumbing tools and equipment such as rules, levels, plumb bobs, dividers, various gauges and meters, various drain cleaning devices, hydrostatic pumps, and torches, to make installations and repairs.

4. - Ability to work as a member of a team to assist other crafts and trades personnel during work assignments.

5. -- Knowledge of principles and theories including the refrigeration cycle, temperature measurement, and the properties of several refrigerants. Knowledge of pressure and temperature relationships and refrigerant tables.

-- Knowledge of the design and operating characteristics of a variety of large industrial and commercial refrigeration and air conditioning systems. Skill in making air flow calculations.

-- Skill in troubleshooting complex problems and in installing and making extensive repairs on large systems.

-- Skill in using hand tools, portable power tools, and a wide variety of test equipment including special tools such as acetylene torch, ammeters, refrigeration gauges, electronic leak detectors, control devices, vacuum pump, hydraulic press, and micrometers.

-- Skill in reading schematics, blue prints, and technical manuals.

-- Knowledge of electrical wiring and a variety of types of controls (electrical, electronic, pneumatic) sufficient to find replace, and make limited repairs to defective equipment, and run test circuits from outside disconnect box to the system.

-- Knowledge of related electrical, sheet metal, welding, insulating, and carpentry installation and fabrication tasks.

Factor 2. Responsibility

The electrician works from building plans, wiring diagrams and engineering drawings. Independently plans and lays out the arrangements of systems, circuits, controls and equipment. Completes installations, modifications, and repairs. Loads and tests systems, circuits, equipment and controls to insure proper and safe operation. Supervisor checks work to ensure timeliness and compliance with accepted trade standards.

Factor 3. Physical Effort

The employee makes repairs from work stands and other hard-to-reach places.

Must stand, stoop, bend, kneel, climb, stretch, and work in tiring and uncomfortable positions. Frequently lifts parts and equipment that weigh up to 20 pounds. Occasionally lifts items that weigh over 40 pounds with assistance from other workers.

Factor 4. Working Conditions

Employee works both inside and outside, sometimes in bad weather and in areas that are noisy, dirty, dusty, and greasy. May work on scaffolding or cranes at heights of 30 or more feet, or in close quarters such as manholes or aboard ships. Subject to electric shock, cuts and bruises. May be exposed to temperature extremes in test facilities, extremely high noise levels, and exposure to lead, radiation, chemicals or carcinogens.

V. CLASSIFICATION SUMMARY

In this position:

Duty A. 14% WL-User defined duty. Not classified by system. The final grade may or may not be appropriate.-
Working Lead Duties

Duty B. 14% WG-2805-10 Electrician
Base/Installation Electrical Support

Duty C. 14% WG-4206-09 Plumber
Journey Level

Duty D. 14% WG-5306-10 Air Conditioning Mechanic
Maintains Refrigeration Systems

Duty E. 14% WG-5306-10 Air Conditioning Mechanic
Plans Systems

Duty F. 14% WG-5306-10 Air Conditioning Mechanic
Troubleshoots Refrigeration Systems

Duty G. 16% WG-5306-10 Air Conditioning Mechanic
Utilizes Safety Regulations

Knowledge 1. user defined, has been linked to duty A.

List of Modified Duties and Factors:

Pay Plan has been edited.
Title has been edited and may or may not be appropriate.
Duty A. has been added.
Knowledge 1 has been added.

OPM Job Grading Standard for Air Conditioning Equipment Mechanic, WG-5306, TS-17 dated June 1971.

The classification criteria are based on the OPM position classification standard for Electrician (2805), TS-55 dated 1989. The criteria used for Helper and Intermediate jobs are OPM job grading standards for Trades Helper Jobs and for Intermediate Jobs (TS-3; November 1968).

The classification criteria for the Plumber occupational menu is based on the OPM Job Grading Standards for Plumber, WG-4206 (TS-6; March 1969), Trades Helper Jobs (TS-3; November 1968), and Intermediate Jobs (TS-3; November 1968).

The job titling, coding, and grading information in this menu are based on the US Job Grading Standard for Maintenance Mechanic, 4749, May 1974 (TS-30), and other information in the US OPM Job Grading System for Trades and Labor

Occupations, Part I, Explanation of Job Grading System.

Grade: WL-10

VI. CLASSIFICATION REMARKS:

Job Grading Standard for Leader WL/NL (TS-39 dtd Jan 1980 FPM Supplement 512-1) part 1 for Working Leader was applied to duty A. The position leads a crew of 11 employees of a wide variety of trades. Four WG-10 (Electrician & A/C Mechanics) constitute the highest grades led by this position. Consequently, the position is graded at the WL-10 level.